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AC adapter

access mechanism

A

**AC adapter** *n.* An external power supply that converts from a 110 VAC or 220 VAC domestic electric supply ("house current" or "main power") to low-voltage DC, which is required to operate solid-state electronic equipment (such as a laptop computer) that does not include an internal power supply.

**Accelerated Graphics Port** *n.* See AGP.

**accelerator** *n.* **1.** In applications, a key or key combination used to perform a defined function. *Also called* shortcut key. **2.** In hardware, a device that speeds or enhances the operation of one or more subsystems, leading to improved program performance. *See also* accelerator card, Windows-based accelerator.

**accelerator board** *n.* See accelerator card.

**accelerator card** *n.* A printed circuit board that replaces or augments the computer's main microprocessor, resulting in faster performance. *Also called* accelerator board. *See also* expansion board, graphics accelerator.

**acceptable use policy** *n.* A statement issued by an ISP (Internet service provider) or an online information service that indicates what activities users may or may not engage in while logged into the service. For example, some providers prohibit users from engaging in commercial activity on the network. *Acronym:* AUP. *See also* ISP, online information service.

**acceptance test** *n.* A formal evaluation of a hardware product performed by the customer, usually at the factory, to verify that the product is performing according to specifications.

**access**<sup>1</sup> *n.* **1.** The act of reading data from or writing data to memory. **2.** Connection to the Internet or other network or system.

**access**<sup>2</sup> *vb.* To gain entry to memory in order to read or write data.

**access arm** *n.* A mechanical arm that moves the read/write head(s) over the surface of a disk in a disk drive. *See the illustration. Also called* head arm.

**ACCESS.bus** *n.* A bidirectional bus for connecting peripherals to a PC. The ACCESS.bus can connect up to 125 low-speed peripherals, such as printers, modems, mice, and keyboards, to the system through a single, general-purpose port. Peripherals that support the ACCESS.bus provide a connector or port connection that is similar to a phone-jack connector and are daisy-chained together. However, the PC communicates directly with each peripheral and vice versa.

Connecting an ACCESS.bus device (for example, a printer) to a system results in the system automatically identifying and configuring it for optimum performance. Peripherals can be connected while the computer is running (*hot plugging*) and are automatically assigned a unique address (auto-addressing). Developed from the architecture designed jointly by Philips and Digital Equipment Corporation, the ACCESS.bus specification is controlled by the ACCESS.bus Industry Group and competes with Intel's USB. *See also* bidirectional, bus, daisy chain<sup>1</sup>, hot plugging, input/output port, peripheral. *Compare* USB.

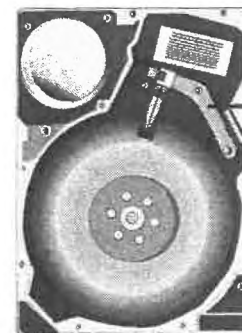
**access code** *n.* See password.

**access control** *n.* The mechanisms for limiting access to certain items of information or to certain controls based on users' identities and their membership in various predefined groups. Access control is typically used by system administrators for controlling user access to network resources, such as servers, directories, and files. *See also* access privileges, system administrator.

**access control list** *n.* A list associated with a file that contains information about which users or groups have permission to access or modify the file. *Acronym:* ACL.

**accessibility** *n.* A quality of software, hardware, or a complete computer system that makes it usable by people with one or more physical disabilities, such as restricted mobility, blindness, or deafness.

**access mechanism** *n.* **1.** The disk drive components that move the read/write head(s) to the proper track of a magnetic disk or optical disc. *See also* disk controller. **2.** A circuit that allows one part of a computer system to send signals to another part. **3.** In programming, the means by which an application can read from or write to a resource. *Also called* access method.



*Access arm.*



## K

**K<sup>1</sup>** \kil'ə-bit\ *n.* Short for kilobyte.

**K<sup>2</sup>** \kil'ə\ *prefix* See kilo-.

**K&R C** *n.* Short for (Brian W.) Kernighan and (Dennis M.) Ritchie C. The version of the C programming language, defined by those two authors, that was the informal C standard until a more formal standard was developed by an ANSI committee. *See also* C.

**Kb** \kil'ə-bit\ *n.* See kilobit.

**KB** \kil'ə-bit\ *n.* See kilobyte.

**Kbit** \kil'ə-bit\ *n.* See kilobit.

**Kbps** *n.* See kilobits per second.

**Kbyte** \kil'ə-bit\ *n.* See kilobyte.

**kc** \kil'ə-sī'kl\ *n.* See kilocycle.

**Kerberos** or **kerberos** \kər'bər-os\ *n.* A network authentication protocol developed by MIT. Kerberos authenticates the identity of users attempting to log on to a network and encrypts their communications through secret-key cryptography. A free implementation of Kerberos is available from MIT, although it is also available in many commercial products. *See also* authentication, cryptography.

**Kermit** *n.* A file transfer protocol used in asynchronous communications between computers. Kermit is a very flexible protocol used in many software packages designed for communications over telephone lines. *Compare* Xmodem, Ymodem, Zmodem.

**kern** *vb.* To alter selectively the distance between pairs of letters for readability and to make the type spacing more balanced and proportional. *See the illustration.*

AWAKE  
AWAKE

*Kern. The first three letters of the second example are kerned.*

**kernel** *n.* The core of an operating system—the portion of the system that manages memory, files, and peripheral devices; maintains the time and date; launches applications; and allocates system resources.

**key** *n.* 1. On a keyboard, the combination of a plastic keycap, a tension mechanism that suspends the keycap but allows it to be pressed down, and an electronic mechanism that records the key press and key release. 2. In database management, an identifier for a record or group of records in a datafile. *See also* B-tree, hash<sup>2</sup>, index<sup>1</sup> (definition 1), inverted list, key field. 3. In encryption and digital signatures, a string of bits used for encrypting and decrypting information to be transmitted. Encryption commonly relies on two different types of keys, a public key known to more than one person (say, both the sender and the receiver) and a private key known only to one person (typically, the sender). 4. A metal object used with a physical lock to disable a computer system.

**keyboard** *n.* A hardware unit with a set of switches that resembles a typewriter keyboard and that conveys information from a user to a computer or data communications circuit. *See also* Alt key, Apple key, arrow key, Backspace key, Break key, Caps Lock key, character code, Clear key, Command key, control character, Control key, Delete key, Dvorak keyboard, End key, enhanced keyboard, Enter key, ergonomic keyboard, Escape key, function key, Help key, Home key, Insert key, keyboard buffer, keyboard controller, keyboard enhancer, keycap, key code, numeric keypad, Num Lock key, Option key, original Macintosh keyboard, Page Down key, Page Up key, Pause key, PC/XT keyboard, Power-on key, Print Screen key, QWERTY keyboard, Return key, scan code, Scroll Lock key, Shift key, Sys Req key, Tab key.

**keyboard buffer** *n.* A small amount of system memory that stores the most recently typed characters. This buffer is used to store typed characters that have not yet been processed. *Also called* type-ahead buffer.



**liveware** *n.* A slang term for people, to distinguish them from hardware, software, and firmware. *Also called* wetware.

**LLC** *n.* Acronym for **Logical Link Control**. In the IEEE 802.x specifications, the higher of two sublayers that make up the ISO/OSI data-link layer. The LLC is responsible for managing communications links and handling frame traffic. *See also* IEEE 802.x, MAC.

**load**<sup>1</sup> *n.* **1.** The total computing burden a system carries at one time. **2.** In electronics, the amount of current drawn by a device. **3.** In communications, the amount of traffic on a line.

**load**<sup>2</sup> *vb.* To place information from storage into memory for processing, if it is data, or for execution, if it is program code.

**load-and-go** *adj.* In reference to a routine, able to begin execution immediately, once loaded. The term is commonly used in reference to compilers and the machine code they generate.

**load balancing** *n.* **1.** In distributed processing, the distribution of activity across two or more servers in order to avoid overloading any one with too many requests from users. Load balancing can be either static or dynamic. In the former, the load is balanced ahead of time by assigning different groups of users to different servers. In the latter, software refers incoming requests at runtime to whichever server is most capable of handling them. **2.** In client/server network administration, the process of reducing heavy traffic flows either by dividing a busy network segment into multiple smaller segments or by using software to distribute traffic among multiple network interface cards working simultaneously to transfer information to a server. **3.** In communications, the process of routing traffic over two or more routes rather than one. Such load balancing results in faster, more reliable transmissions.

**loaded line** *n.* A transmission cable fitted with loading coils, usually spaced about a mile apart, that reduce amplitude distortion in a signal by adding inductance (resistance to changes in current flow) to the line. Loaded lines minimize distortion within the range of frequencies affected by the loading coils, but the coils also reduce the bandwidth available for transmission.

**loader** *n.* A utility that loads the executable code of a program into memory for execution. On most microcomputers, the loader is an invisible part of the oper-

ating system and is automatically invoked when a program is run. *See also* loader routine, load module.

**loader routine** *n.* A routine that loads executable code into memory and executes it. A loader routine can be part of an operating system or it can be part of the program itself. *See also* loader, overlay<sup>1</sup> (definition 1).

**load module** *n.* An executable unit of code loaded into memory by the loader. A program consists of one or more load modules, each of which can be loaded and executed independently. *See also* loader.

**load point** *n.* The beginning of the valid data area on a magnetic tape.

**load sharing** *n.* A method of managing one or more tasks, jobs, or processes by scheduling and simultaneously executing portions of them on two or more microprocessors.

**load shedding** *n.* In electrical systems, the process of turning off power to some electronic equipment in order to maintain the integrity of the power supply to other connected devices. *See also* UPS.

**local** *adj.* **1.** In general, close at hand or restricted to a particular area. **2.** In communications, a device that can be accessed directly rather than by means of a communications line. **3.** In information processing, an operation performed by the computer at hand rather than by a remote computer. **4.** In programming, a variable that is restricted in scope, that is, used in only one part (subprogram, procedure, or function) of a program. *Compare* remote.

**local area network** *n.* *See* LAN.

**local bus** *n.* A PC architecture designed to speed up system performance by allowing some expansion boards to communicate directly with the microprocessor, bypassing the normal system bus entirely. *See also* PCI local bus, VL bus.

**local bypass** *n.* A telephone connection used by some businesses that links separate buildings but bypasses the telephone company.

**localhost** *n.* The name that is used to represent the same computer on which a TCP/IP message originates. An IP packet sent to localhost has the IP address 127.0.0.1 and does not actually go out to the Internet. *See also* IP address, packet (definition 1), TCP/IP.

**localization** *n.* The process of altering a program so that it is appropriate for the area in which it is used. For example, the developers of a word processing program must localize the sorting tables in the pro-



**noninterlaced** *adj.* A display method on raster-scan monitors in which the electron beam scans each line of the screen once during each refresh cycle. *Compare* interlacing.

**nonmaskable interrupt** *n.* A hardware interrupt that bypasses and takes priority over interrupt requests generated by software and by the keyboard and other such devices. A nonmaskable interrupt cannot be overruled (masked) by another service request and is issued to the microprocessor only in disastrous circumstances, such as severe memory errors or impending power failures. *Acronym:* NMI. *Compare* maskable interrupt.

**nonprocedural language** *n.* A programming language that does not follow the procedural paradigm of executing statements, subroutine calls, and control structures sequentially but instead describes a set of facts and relationships and then is queried for specific results. *Compare* procedural language.

**nonreturn to zero** *n.* **1.** In data transmission, a method of encoding data in which the signal representing binary digits alternates between positive and negative voltage when there is a change in digits from 1 to 0 or vice versa. In other words, the signal does not return to a zero, or neutral, level after transmission of each bit. Timing is used to distinguish one bit from the next. **2.** In the recording of data on a magnetic surface, a method in which one magnetic state represents a 1 and, usually, the opposite state represents a 0. *Acronym:* NRZ.

**nontrivial** *adj.* Being either difficult or particularly meaningful. For example, a complicated programmed procedure to handle a difficult problem would represent a nontrivial solution.

**nonuniform memory architecture** *n.* A system architecture designed for Sequent's Non-Uniform Access Memory, a type of distributed shared memory using a number of shared memory segments instead of a single centralized physical memory. *Acronym:* NUMA.

**nonvolatile memory** *n.* A storage system that does not lose data when power is removed from it. Intended to refer to core memory, ROM, EPROM, flash memory, bubble memory, or battery-backed CMOS RAM, the term is occasionally used in reference to disk subsystems as well. *See also* bubble memory, CMOS RAM, core, EPROM, flash memory, ROM.

**NO-OP** \nō'op\ *n.* *See* no-operation instruction.

**no-operation instruction** *n.* A machine instruction that has no results other than to cause the processor to use up clock cycles. Such instructions are useful in certain situations, such as padding out timing loops or forcing subsequent instructions to align on certain memory boundaries. *Acronym:* NO-OP, NOP. *See also* machine instruction.

**NOP** *n.* *See* no-operation instruction.

**NOR gate** \nor'gāt\ *n.* Short for **NOT OR gate**. A digital circuit whose output is true (1) only if all inputs are false (0). A NOR gate is an OR circuit (output with the value of 1 if any input value is 1) followed by a NOT circuit (output that is the logical complement of the input). *See also* NOT gate, OR gate, gate (definition 1).

**normal distribution** *n.* In statistics, a type of function that describes the probabilities of the possible values of a random variable. The function, whose graph is the familiar bell-shaped curve, can be used to determine the probability that the value of the variable will fall within a particular interval of values.

**normal form** *n.* **1.** In a relational database, an approach to structuring (organizing) information in order to avoid redundancy and inconsistency and to promote efficient maintenance, storage, and updating. Several "rules" or levels of normalization are accepted, each a refinement of the preceding one. Of these, three forms are commonly used: first normal (1NF), second normal (2NF), and third normal (3NF). First normal forms, the least structured, are groups of records (such as employee lists) in which each field (column) contains unique and nonrepeating information. Second and third normal forms break down first normal forms, separating them into different tables by defining successively finer interrelationships between fields. Second normal forms do not include fields that are subsets of fields other than the primary (key) field; for example, a second normal form keyed to employee name would not include both job grade and hourly rate if pay were dependent on job grade. Third normal forms do not include fields that provide information about fields other than the key field; for example, a third normal form keyed to employee name would not include project name, crew number, and supervisor unless the crew number and supervisor were assigned only to the project the employee was working on. Further normalization refinements include Boyce-Codd Normal Form (BCNF), fourth normal form (4NF), and projection-join (or fifth)



## Open Financial Connectivity

## operations research

file's contents can be used, and it must close the file when done. *See also* open<sup>2</sup>.

**Open Financial Connectivity** *n.* The Microsoft specification for an interface between electronic banking services and Microsoft Money personal finance software. *Acronym:* OFC.

**Open Group** *n.* A consortium of computer hardware and software manufacturers and users from industry, government, and academia that is dedicated to the advancement of multivendor information systems. The Open Group was formed in 1996 as a consolidation of the Open Software Foundation and X/Open Company Limited.

**OpenMPEG Consortium** *n.* An international organization of hardware and software developers for promoting the use of the MPEG standards. *Acronym:* OM-1. *See also* MPEG.

**Open Profiling Standard** *n.* An Internet personalization and privacy specification submitted for consideration to the World Wide Web Consortium by Netscape Communications Corporation, Firefly Network, Inc., and VeriSign, Inc. OPS enables users to customize online services while protecting their privacy. To achieve personalization and privacy concomitantly, OPS is based on the concept of a Personal Profile, which is stored on the individual's computer and contains the user's unique identification, demographic and contact data, and possibly content preferences. This information remains under the user's control and can be released wholly or in part to the requesting site. *Acronym:* OPS. *See also* cookie, digital certificate.

**open shop** *n.* A computer facility that is open to users and not restricted to programmers or other personnel. An open shop is one in which people can work on or attempt to solve computer problems on their own rather than handing them over to a specialist.

**Open Shortest Path First** *n.* *See* OSPF.

**Open Software Foundation** *n.* *See* OSF.

**open source** *n.* The practice of making the source code (program instructions) for a software product freely available, at no cost, to interested users and developers, even though they were not involved in creating the original product. The distributors of open source software expect and encourage users and outside programmers to examine the code in order to identify problems, and to modify the code with suggested improvements and enhancements. Widely

used open-source products include the Linux operating system and the Apache web server.

**open standard** *n.* A publicly available set of specifications describing the characteristics of a hardware device or software program. Open standards are published to encourage interoperability and thereby help popularize new technologies. *See also* standard (definition 2).

**open system** *n.* 1. In communications, a computer network designed to incorporate all devices—regardless of the manufacturer or model—that can use the same communications facilities and protocols. 2. In reference to computer hardware or software, a system that can accept add-ons produced by third-party suppliers. *See also* open architecture (definition 1).

**Open Systems Interconnection reference model** *n.* *See* ISO/OSI reference model.

**operand** *n.* The object of a mathematical operation on a computer instruction.

**operating system** *n.* The software that controls the allocation and usage of hardware resources such as memory, central processing unit (CPU) time, disk space, and peripheral devices. The operating system is the foundation software on which applications depend. Popular operating systems include Windows 98, Windows NT, Mac OS, and UNIX. *Acronym:* OS. *Also called* executive.

**operation** *n.* 1. A specific action carried out by a computer in the process of executing a program. 2. In mathematics, an action performed on a set of entities that produces a new entity. Examples of mathematical operations are addition and subtraction.

**operation code** *n.* The portion of a machine language or assembly language instruction that specifies the type of instruction and the structure of the data on which it operates. *Also called* opcode. *See also* assembly language, machine code.

**operations research** *n.* The use of mathematical and scientific approaches to analyze and improve efficiency in business, management, government, and other areas. Developed around the beginning of World War II, operations research was initially used to improve military operations during the war. The practice later spread to business and industry as a means of breaking down systems and procedures and studying their parts and interactions to improve overall performance. Operations research involves use of



sequential logic element

server

**sequential logic element** *n.* A logic circuit element that has at least one input and one output and in which the output signal depends on the present and past states of the input signal or signals.

**sequential processing** *n.* 1. The processing of items of information in the order in which they are stored or input. 2. The execution of one instruction, routine, or task followed by the execution of the next in line. *Compare* multiprocessing, parallel processing, pipelining (definition 1).

**sequential search** *n.* *See* linear search.

**serial** *adj.* One by one. For example, in serial transmission, information is transferred one bit at a time; a serial computer has only one arithmetic logic unit, which must execute the whole program one step at a time. *Compare* parallel (definition 3).

**serial access** *n.* *See* sequential access.

**serial adder** *n.* A circuit that adds two numbers one bit position (one digit place) at a time.

**serial communication** *n.* The exchange of information between computers or between computers and peripheral devices one bit at a time over a single channel. Serial communications can be synchronous or asynchronous. Both sender and receiver must use the same baud rate, parity, and control information. *See also* baud rate, parity, start bit, stop bit.

**Serial Infrared** *n.* A system developed by Hewlett-Packard for transmitting data between two devices up to 1 meter apart using an infrared light beam. Infrared ports on the receiving and the sending devices must be aligned. Generally, Serial Infrared is used with laptops and many notebook computers, as well as with peripherals such as printers. *Acronym:* SIR. *See also* infrared port.

**serial interface** *n.* A data transmission scheme in which data and control bits are sent sequentially over a single channel. In reference to a serial input/output connection, the term usually implies the use of an RS-232 or RS-422 interface. *See also* RS-232-C standard, RS-422/423/449. *Compare* parallel interface.

**serialize** *vb.* To change from parallel transmission (byte by byte) to serial transmission (bit by bit). *Compare* deserialize.

**SerialKeys** *n.* A feature of Windows 9x and Windows NT that, in conjunction with a communications aid interface device, allows keystrokes and mouse controls to be accepted through a computer's serial port.

**Serial Line Internet Protocol** *n.* *See* SLIP.

**serial mouse** *n.* A pointing device that attaches to the computer through a standard serial port. *See also* mouse. *Compare* bus mouse.

**serial port** *n.* An input/output location (channel) that sends and receives data to and from a computer's central processing unit or a communications device one bit at a time. Serial ports are used for serial data communication and as interfaces with some peripheral devices, such as mice and printers.

**serial port adapter** *n.* An interface card or device that either provides a serial port or converts a serial port to another use. *See also* adapter, serial port.

**serial printer** *n.* A printer connected to the computer via a serial interface (commonly RS-232-C or compatible). Connectors for this type of printer vary widely, which is one reason they are less popular than parallel printers among those who use IBM and IBM-compatible PCs. Serial printers are standard for Apple computers. *See also* DB connector, serial, serial transmission. *Compare* parallel printer.

**serial processing** *n.* *See* sequential processing (definition 2).

**Serial Storage Architecture** *n.* *See* SSA.

**serial transmission** *n.* The transfer of discrete signals one after another. In communications and data transfer, serial transmission involves sending information over a single line one bit at a time, as in modem-to-modem connections. *Compare* parallel transmission.

**series circuit** *n.* A circuit in which two or more components are linked in series. All the current passes through each component in a series circuit, but the voltage is divided among the components. *See the illustration. Compare* parallel circuit.



*Series circuit.*

**serif**<sup>1</sup> *adj.* Marked by the use of serifs. For example, Goudy is a serif typeface, whereas Helvetica is a sans serif typeface. *See the illustration. See also* serif<sup>2</sup>. *Compare* sans serif.

**serif**<sup>2</sup> *n.* Any of the short lines or ornaments at the ends of the strokes that form a typeface character.

**server** *n.* 1. On a local area network (LAN), a computer running administrative software that controls access to the network and its resources, such as printers and disk drives, and provides resources to

S



server-based application

servlet

ABC  
V  
Serifs  
ABC

*Serif. A serif typeface (top) and a sans serif typeface (bottom).*

computers functioning as workstations on the network.

**2.** On the Internet or other network, a computer or program that responds to commands from a client. For example, a file server may contain an archive of data or program files; when a client submits a request for a file, the server transfers a copy of the file to the client. *See also* client/server architecture. *Compare* client (definition 3).

**server-based application** *n.* A program that is shared over a network. The program is stored on the network server and can be used at more than one client machine at a time.

**server cluster** *n.* A group of independent computers that work together as a single system. A server cluster presents the appearance of a single server to a client.

**server error** *n.* A failure to complete a request for information through HTTP that results from an error at the server rather than an error by the client or the user. Server errors are indicated by HTTP status codes beginning with 5. *See also* HTTP, HTTP status codes.

**serverlet** *n.* *See* servlet.

**server push-pull** *n.* A combination of Web client/server techniques individually called "server push" and "client pull." In server push, the server loads data to the client, but the data connection stays open. This allows the server to continue sending data to the browser as necessary. In client pull, the server loads data to the client, but the data connection does not stay open. The server sends an HTML directive to the browser telling it to reopen the connection after a certain interval to get more data or possibly to open a new URL. *See the illustration. See also* HTML, server (definition 2), URL.

**server-side include** *n.* A mechanism for including dynamic text in World Wide Web documents. Server-side includes are special command codes that are recognized and interpreted by the server; their output

is placed in the document body before the document is sent to the browser. Server-side includes can be used, for example, to include the date/time stamp in the text of the file. *Acronym:* SSI. *See also* server (definition 2).

**service** *n.* **1.** A customer-based or user-oriented function, such as technical support or network provision. **2.** In reference to programming and software, a program or routine that provides support to other programs, particularly at a low (close to the hardware) level. **3.** In networking, specialized, software-based functionality provided by network servers—for example, directory services that provide the network equivalent of "phone books" needed for locating users and resources. *See also* utility.

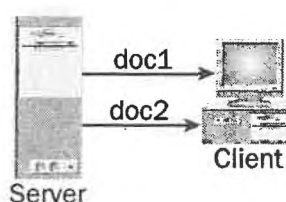
**Service Advertising Protocol** *n.* A method used by a service-providing node in a network (such as a file server or application server) to notify other nodes on the network that it is available for access. When a server boots, it uses the protocol to advertise its service; when the same server goes offline, it uses the protocol to announce that it is no longer available. *Acronym:* SAP. *See also* server (definition 1).

**service bureau** *n.* **1.** A company that provides various services related to publishing, such as prepress production, desktop publishing, typesetting, image-setting, and optical scanning of graphics. **2.** An organization that provides data processing services and access to software packages for a fee.

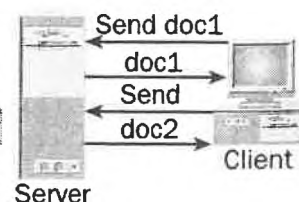
**service provider** *n.* *See* ISP.

**servlet or servelet** *n.* A small Java program that runs on a server. The term is a companion to applet, a Java program that usually runs on the client. Servlets perform lightweight Web services, such as redirecting a Web user from an outdated address to the correct page-tasks traditionally handled by CGI (Common Gateway Interface) applications. Because servlets are automatically threaded and highly responsive, they execute quickly, thereby reducing system overhead. *Also called* serverlet. *See also* applet, CGI.

### Server push



### Client pull



*Server push-pull.*